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No. IV.

THE PATENT METALLIC CEMENT.

By C. K. DYER.

November 29th, 1843.

BENJAMIN ROTCH, ESQ. V.P. IN THE CHAIR.

Abstract.

THE difficulty of obtaining the Italian pozzolano, the value of which as an hydraulic cement is well known to the civil engineer and architect, renders the introduction of the British metallic sand of considerable importance to all persons connected with building. It is produced from copper slag, which is obtained at Swansea in large quantities, being ground by means of powerful machinery.

In chemical analysis the metallic sand is very similar to the pozzolano, consisting of iron, zinc, arsenic, and silica, the iron predominating. In point of durability it is found to be quite equal to the latter. It enters readily into combination with blue lias lime, which has been used with the metallic cement for hydraulic works; and the indurating quality of the sand, after many years' exposure to the atmosphere, have been fully tested.

Several specimens of work executed with the metallic sand were laid on the table.

No. V.

CHANTER'S MOVABLE FIRE-BARS AND
SMOKE-CONSUMING APPARATUS.*Abstract.*

MR. CHANTER explained his movable fire-bar, the object of which is to prevent the accumulation of clinker

in the grate, and to keep the air-channels at all times open.

The principle of the invention consists in moving the alternate bars longitudinally in contrary directions, which is effected by a system of levers, moved either by hand or by a connexion with a steam-engine. For a 30-horse boiler, $\frac{1}{2}$ -horse power is required to effect the regular and continuous movement of the bars.

Mr. Chanter afterwards explained, by means of large sectional drawings, the application of his smoke-consuming apparatus, which is applied in a variety of forms to different kinds of boilers. Instead of cold air, Mr. Chanter introduces jets of warm air behind the bridge of the furnace.

The result of a series of experiments with Mr. Chanter's apparatus, made in July 1843, at the great cloth-works of Messrs. Thompson, brothers, at Clitheroe, Lancashire, shews a saving of fuel of 16 per cent for steam-boilers, 30 per cent on singeing-plates, and nearly 38 per cent in blanket-drying stoves.

No. VI.

ON LOCKS.

December 6th, 1843.

W. TOOKE, ESQ. V.P. IN THE CHAIR.

MR. SOLLY and Mr. Varley explained by means of models a variety of ingenious and useful locks, most of which have been rewarded by the Society, including the Arab lock of wood, supposed to have been found in one of the pyramids of Egypt, and which lock is now in the Society's possession; the alarm-lock of Mr. Meigham;